REMARKS

Claim Status

Claims 22-43 are pending in the application. Claims 26-28 and 38 were withdrawn by the Examiner as being drawn to a non-elected invention. Claim 22 has been amended. Claims 25, 29-31 and 33-37 have been cancelled. New Claims 44-52 have been added.

Claim Amendments

Claim 22 has been amended to incorporate subject matter of Claims 25 and 31 and to correct obvious typographical errors. Support for this amendment can be found in the previously presented Claims 25 and 31.

Claims 25, 29-31 and 33-37 have been cancelled.

New Claim 44 has been added to be directed to the elected subject matter, in particular, Formulas (5)-(15) from previously presented Claim 26. Support for this amendment can be found in the previously presented Claim 26.

New Claim 45 has been added to be directed to the elected subject matter, in particular, Formulas (40)-(42) from the previously presented Claim 28. Support for this amendment can be found in the previously presented Claim 28.

New Claim 46 has been added to be directed to Formulas (2), (5)-(15) and (40)-(42) from the previously presented Claim 29. Support for this amendment can be found in previously presented Claim 29.

New Claim 47 has been added to be directed to Formulas (2), (5)-(15) and (40)-(42) from the previously presented Claim 33. Support for this amendment can be found in previously presented Claim 33.

New Claims 48-51 have been added to incorporate subject matter of the previously presented Claims 34-37, respectively, and to have correct dependency. Support for this amendment can be found in the previously presented Claims 34-37.

New Claim 52 has been added to be directed to a compound of the Formulas (40)-(42) from the previously presented Claim 38. Support for this amendment can be found in the previously presented Claim 38.

Election/Restriction

The Examiner acknowledge Applicant's election with traverse of Group 2 (claims 22-25, 29-27 and 39-43) drawn to a mixture, wherein the variable L is P, As, Sb or Bi and according to Formula (2), made in Reply to restriction requirement, mailed on September 11, 2008.

Applicants amended all claims in the application to be directed to the elected subject matter according to Formula (2). Applicants note that Formulas (5)-(15) and (40)-(42) are subgeneric formulas of Formula (2). All of the Formulas (5)-(15) and (40)-(42) are encompassed within the structure described by the Formula (2) and contain same common set of variables L, wherein L is P, As, Sb or Bi, R^1, R^2, and R^3 as defined in Claim 22.

With regard to the new claims added in the application, Applicants offer the following observations:

New Claim 44 has been added to be directed to the mixture, characterized in that the matrix material A is at least one compound of Formulas (5)-(15) and to exclude non-elected subject matter from the previously presented Claim 26.

New Claim 45 has been added to be directed to the mixture, characterized in that the matrix material A is at least one compound of Formulas (40)-(42) and to exclude non-elected subject matter from the previously presented Claim 28.

New Claim 47 has been added to be directed to Formulas (2), (5)-(15) and (40)-(42) and to exclude non-elected subject matter from the previously presented Claim 33.

New Claims 48-51 have been added to incorporate subject matter of the previously presented Claims 34-37 and to correct dependency.

New Claim 52 has been added to be directed to a compound of the Formulas (40)-(42) and to exclude non-elected subject matter from the previously presented Claim 38.

Claims 25, 30-31 and 33-37 have been cancelled.

Applicants believe that these amendments bring the application in conformity with the election/restriction requirement and present no further search burden for the Examiner.

Applicants do not hereby abandon or waive any rights in the non-elected inventions.

Claim Objection

Claims 22-25, 29-37 and 39-43 have been objected because they contain non-elected subject matter.

All Claims in the Application have been amended to exclude non-elected subject matter, as described in details above.

In the view of the above, reconsideration and withdrawal of the objection is respectfully requested.

Rejection of Claims 22-25, 29-37 and 39-43 under 35 U.S.C. §112, Second Paragraph

Claims 22-25, 29-37 and 39-43 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner stated, on page 3 of the Office Action mailed on December 19, 2008 that terms "nonbonding electron pair, emission material B, one element of atomic number greater than 20, formula 1 to 48" in Claims 22, 29 and 33 are relative terms which render the claim indefinite. Additionally, the Examiner requested that Applicants correct all other terms that are indefinite and suggested that Applicants incorporate Claims 25 and 32 into Claim 22.

Applicants incorporated subject matter of Claim 25 into Claim 22. Applicants also incorporated the subject matter of Claim 31 into Claim 22. The term "nonbonding electron pair" has been deleted from Claim 22. With regard to the term "emission material", Applicants note that it is defined in Claim 22 as a material being capable of emission and being a compound, which emits light upon suitable excitation. With regard to the term "one element of atomic number greater than 20", applicants argue that it is a common knowledge in the art of chemistry that the atomic number is the number of the element in the periodic table of elements. Therefore, an atom with the "atomic number greater than 20" is any element from the periodic table of the elements starting from scandium. To further clarify the terms "emission material" and "atomic number greater than 20" Applicants amended Claim 22 by incorporating subject matter of Claim 31, further defining that the emitter material comprises an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium.

Applicants note that obvious typographical error from Claim 31, was corrected by adding a conjunction "or". It is clear that omission of the conjunction "or" was a typographical

mistake, since at least some of the elements given in the list have atomic number less than 56, i.e., molybdenum, palladium or silver.

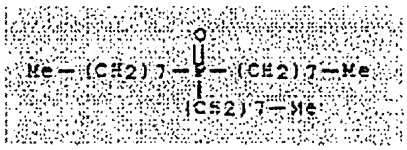
With regard to the term "formula (1) to (48)" in Claims 29 and 33 Applicants note that Claims 29 and 33 have been cancelled and new Claims 46 and 47, which incorporate subject matter of Claims 29 and 33, respectively, have been amended to be directed to Formulas (5)-(15) and (40)-(42), which are subgeneric formulas of Formula (2).

Applicants submit that Claims 22 and new Claims 46-47, as amended, are definite. Furthermore, Claims 23-24, 32, 39-43, and new claims 47-51 depend directly or indirectly on Claims 22 and 46-47, therefore, are also definite in view of the previously advanced rejection under 35 U.S.C. §112. Reconsideration and withdrawal of the rejection are respectfully requested.

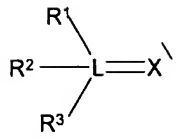
Rejection of Claims 22-25, 29-31 and 33-37 under 35 U.S.C. §102(a)

Claims 22-25, 29-31 and 33-37 have been rejected under 35 U.S.C. §102(a) as being anticipated by Mekis *et al.*, One-Pot Synthesis of Highly Luminescent CdSe/CdS Core Shell Nanocrystals via Organometallic and "Greener" Chemical Approach, Journal of Physical Chemistry B (2003), 107(30), 7454-7462 (hereinafter "Mekis").

The Examiner stated (page 4 of the Office Action mailed on December 18, 2008) that Mekis discloses applicants claimed mixture comprising the compound as shown below:



Applicants note that Mekis discloses the synthesis of CdSe/CdS nanocrystals. Mekis does not discloses the mixture of phosphineoxides with an emitter comprising a metal atom element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium. Claim 22, as amended, includes a mixture comprising at least one matrix material A which comprises at least one structural unit of the Formula (2):



Formula (2)

and at least one emission material B which contains at least one element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium. Therefore Claim 22, as well as, all directly and indirectly dependent Claims are novel with respect to Mekis.

Moreover, Claim 22 and claims dependent thereon are also non-obvious over Mekis. There is no suggestion or motivation in Mekis to replace Cd atom, in the mixtures with trioctylphosphineoxide (TOPO)-trioctilphosphine (TOP), by an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium. Mekis does not provide any reason to replace Cd with an above-described element, and does not provide a resonable expectation of success of such replacement.

Furthermore, one of the ordinary skill in the art would not have found it obvious to replace Cd with a metal of an atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium in the mixtures of Mekis. It is well established in Patent Law that it is improper to assume that different chemical structures would have the same properties, absent a teaching of equivalency in the prior art:

> Upon review of this history, we have concluded that generalization should be avoided insofar as specific chemical structures are alleged to be *prima facie* one from the other. [...] [I]n the case before us there must be adequate support in the prior art for the ester/thioester change in structure in order to complete the PTO's *prima facie* case and shift the burden of going forward to the applicant. (In Re Grabiak, 226 USPQ 870 at 872 (CAFC 1985)).

The court of In Re Grabiak further held:

> The Bollinger teaching of various heterocyclic rings containing two sulfur atoms or one oxygen and one sulfur atom, rings which are unlike any part of

> the Howe molecule, does not suggest the interchangeability of sulfur and oxygen in the ester moiety of the Howe molecule. (*Ibid.*)

Applying In Re Grabiak to the facts of the present case, absent some structure-activity data indicating equivalency between Cd and an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium, it is improper to assume that replacement of one element by another would result in the similar emission characteristics for the two mixtures. As such, it is not reasonable to expect that the teachings of Mekis (Cd containing emitter) could be applied to emitter comprising an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium, with a reasonable expectation of success (see also Takeda Chemical v. Alphapharm, 492 F.3d 1350, 83 U.S.P.Q.2D 1169 (C.A.F.C. 2007)[1]).

In the view of the above, Applicants submit that independent Claim 22 and Claims depending thereon are novel and non-obvious over Mekis. Reconsideration and withdrawal of the rejection under 35 U.S.C. §102(a) is respectfully requested.

Rejection of Claims 22-25, 29-31 and 33-37 under 35 U.S.C. §102(b)

Claims 22-25, 29-31 and 33-37 have been rejected under 35 U.S.C. §102(b) as being anticipated by Riwotzki *et al.*, Liquid-phase synthesis of colloids and redispersible powders of strongly luminiscing LaPO4:Ce, Tb nanocrystals, Angewandte Chemi, International Edition (2001), 40(3), 573-576, (hereinafter "Riwotzki").

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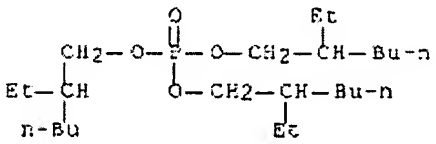
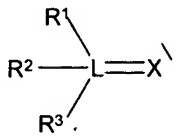
[1] The] test for prima facie obviousness for chemical compounds is consistent with the legal principles enunciated in *KSR*. [...] Thus, in cases involving new chemical compounds, it remains necessary to identify some reason that would have led a chemist to modify a known compound in a particular manner to establish prima facie obviousness of a new claimed compound. (492 F.3d 1350 at 1356 and 1357)(*emphasis added)*

The Examiner stated (page 5 of the Office Action mailed on December 18, 2008) that Riwotzki discloses applicants claimed mixture comprising the compound as shown below:



Applicants note that Riwotzki discloses the synthesis of $LaPO_4$:Ce,Tb nanocrystals. Riwotzki does not discloses the mixture of phosphineoxides with an emitter comprising an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium. As noted above, Claim 22, as amended, includes a mixture comprising at least one matrix material A which comprises at least one structural unit of the Formula (2):



Formula (2)

and at least one emission material B which contains at least one element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium. Therefore Claim 22, as well as, all directly and indirectly dependent claims thereon, are novel with respect to Riwotzki.

Moreover, Claim 22 and claims dependent thereon are also non-obvious over Riwotzki. There is no suggestion or motivation disclosed in Riwotzki that $LaPO_4$:Ce,Tb in the mixtures with tris-ethylhexylphosphate could be replaced by an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium. Furthermore, Riwotzki does not provide any reason to replace $LaPO_4$:Ce,Tb with an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium,

rhodium, iridium, palladium, platinum, silver, gold or europium. In addition, Riwotzki does provide any reasonable expectation of success of such replacement.

Furthermore, one of the ordinary skill in the art would not have found it obvious to replace $LaPO_4$:Ce,Tb with an element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium, in the mixtures of Riwotzki. As discussed in details above, it is well established in Patent Law that it is improper to assume that different chemical structures would have the same properties, absent a teaching of equivalency in the prior art.

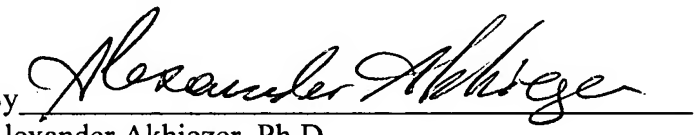
In the view of the above, Applicants submit that independent Claim 22 and all directly and indirectly dependent Claims thereon, are novel and non-obvious over Riwotzki. Reconsideration and withdrawal of the rejection under 35 U.S.C. §102(b) is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 

Alexander Akhiezer, Ph.D.
Registration No. 54,617
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

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